**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
REGION 4
ATLANTA FEDERAL CENTER
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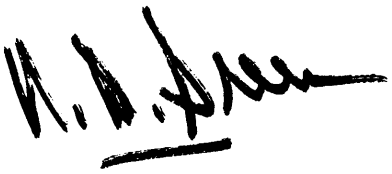
ATLANTA, GEORGIA 30303-3104

SEP 24 1997

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations on the Surface Impoundments Operable Unit for the Oak Ridge National Laboratory

FROM: Richard D. Green, Acting Director
Waste Management Division
EPA Region 4



TO: Bruce K. Means, Chair
National Remedy Review Board

The purpose of this memorandum is to provide additional information in response to the National Remedy Review Board's (NRRB) August 15, 1997 recommendations concerning final remedy selection at the Surface Impoundments Operable Unit of the Department of Energy (DOE) Oak Ridge Reservation (ORR), Oak Ridge Tennessee. As you know, DOE, with the support of the Tennessee Department of Environment and Conservation and EPA Region 4, has proposed a remedial alternative for these surface impoundments involving removal, treatment, and off-site disposal of contaminated materials, with a contingent alternative for disposal at the centralized waste facility at ORR now under consideration, in the event that such a facility is constructed.

As indicated in our August 21, 1997 memorandum to you, Region 4's support for selecting this remedial alternative has been based upon consideration of all nine of the remedy selection criteria specified in the National Contingency Plan, including the modifying criteria of state and community acceptance to be applied before final remedy selection, as required by the NCP at 40 C.F.R. §300.430(f)(4). In supplementation of our previous memorandum, we are herein providing additional information to clarify the basis for our conclusion that this off-site disposal remedy meets the NCP's cost-effectiveness criterion.

Pursuant to 40 C.F.R. §300.430(f)(1)(ii)(D), cost-effectiveness is to be determined by evaluating a remedy's long term effectiveness and permanence, reduction of toxicity, mobility, or volume, and short term effectiveness to determine the remedy's overall effectiveness. Overall effectiveness is then compared to cost. A remedy is considered to be cost effective if its costs are proportional to its overall effectiveness.

Cost and Potential Savings

The cost for the preferred alternative presented in the proposed plan was $53.1 million in present worth value. The DOE has since refined this estimate and the revised estimated cost is $38.7

million in present worth value. The differences in cost are due to the elimination of certain contingency factors built into DOE's cost estimates and a change in overall site operations strategy from a Management and Operations Contractor approach to a Management and Integration Contractor approach. However, in evaluating the overall cost-effectiveness of this estimated outlay of $38.7 million, one must consider a number of factors which will offset this initial outlay by added future value and/or savings which will be realized from implementation of this alternative.

The cost of the remedial action will be partially offset by the value of reutilization of the specific parcel of land currently occupied by the impoundments. The DOE currently has preliminary plans for the use of that parcel for a new research facility. Beneficial reuse of this land parcel, located within the heavily industrialized portion of the Laboratory, will help to ensure the overall continued economic contribution to the local and regional economy.

The cost of the remedial action will be additionally offset by the continued viability and desirability of the overall Laboratory for future use. The Oak Ridge National Laboratory is a national resource that has historically distinguished itself by making many significant contributions to national research and development efforts. This Laboratory and its highly skilled scientific community is a major economic engine supporting eastern Tennessee. Relocation of these waste materials will avoid stigmatizing the Laboratory area by commingling waste disposal areas with research facilities. This will help maintain the attractiveness of the facility and thereby enhance the likelihood that it will continue to be a national scientific resource.

Utilization of a centralized waste disposal facility (either off Oak Ridge Reservation or, under the contingent scenario, within its boundaries) will significantly reduce overall DOE costs for maintenance, monitoring, and other controls, when compared with the need to maintain many smaller disposal cells. The Reservation is pursuing a strategy where CERCLA generated wastes will be consolidated into one large (1 million $yds^3$) modern waste management facility. The utilization of one large facility is expected to result in a lower cost over the long term than would numerous small and scattered disposal cells. Significantly, such consolidation of radioactive waste, including use of both off site disposal and centralized on-site disposal in combination, has been key to the overall strategy for remediation of other major DOE sites -- with the full support of EPA.

The preferred alternative also may avoid significant future costs which would be incurred for readdressing remedial alternatives not in compliance with current Tennessee policy specifying a State goal that ORR radioactive wastes which require long-term institutional controls ultimately be relocated. If maintained, this policy could cause future costs to be incurred for all disposal alternatives except for the preferred alternative.

Long Term Effectiveness and Permanence

The preferred alternative involves the consolidation of the impoundment's waste with other similar wastes at the Nevada Test Site. Environmental conditions at the Nevada Test Site are much more compatible with the long term containment of radioactive wastes when compared to the hydrogeology of eastern Tennessee. The low rainfall and deep groundwater conditions present at the

Nevada Test Site make that facility more effective as a permanent disposal facility for these radioactive wastes than presently available on-site alternatives. If the Centralized Waste Management Facility, similar in construction to a large RCRA subtitle C facility, is constructed at the Reservation, that facility will also provide greater permanence than presently available alternatives (and at a lower cost than disposal at the Nevada Test Site).

Accordingly, a significant part of the increased cost associated with the preferred alternative is justified by the increase in permanence achieved by this alternative. Such permanence is particularly important here because of the transuranic constituents within the surface impoundment waste materials.

Reduction of Toxicity, Mobility, or Volume

The treatment provided under the preferred alternative will significantly reduce the mobility of the radioactive contaminants being remediated. This reduction in mobility will enhance the permanence of the preferred alternative over the other alternatives not including treatment. Another enhancement to permanence will be achieved by the preferred alternative's provision for the reduction of the toxicity through destruction of the PCBs in two of the impoundments.

These enhancements to permanence achieved through treatment, in accordance with CERCLA's expressed preferences, also justify a portion of the preferred alternative's incremental cost.

Short Term Effectiveness

Although no part of the cost increase associated with the preferred alternative is justified by short-term effectiveness considerations, it should be noted that this alternative fully satisfies this remedy selection criterion. The preferred alternative includes engineered and administrative controls to ensure that protection of the public, workers, and environment are maintained during implementation of the remedy, which is achieved within a reasonable time period.

Conclusion

Based on the analysis summarized above, Region 4 has concluded that the cost associated with the preferred remedial alternative for the Surface Impoundments Operable Unit at the Oak Ridge National Laboratory are proportional to this remedy's overall effectiveness. Increases in cost over other alternatives -- especially considering added future value and/or savings -- are justified by this remedy's long-term effectiveness and permanence with respect to the radioactive contaminants being remediated and the remedy's utilization of treatment which reduces the mobility and toxicity of the waste materials in accordance with statutory preferences.

If you have any questions regarding this matter, please contact Mr. Jon Johnston, Chief, Federal Facilities Branch, at 404/562-8527, or Camilla Warren, Chief, DOE Remedial Section, at 404/562-8519.

cc: S. Luftig
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